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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/542,643	07/19/2005	Toshinori Takatsuka	04208.0220	1715
22852 7590 01/23/2009 FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			EXAMINER SITTA, GRANT	
			ART UNIT 2629	PAPER NUMBER
			MAIL DATE 01/23/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/542,643

Applicant(s)

TAKATSUKA, TOSHINORI

Examiner

GRANT D. SITTA

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2008.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19, 21, 23, 26, 33, 35, 37, 38, 43, 44, 46, 47 and 49-67 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 19, 21, 23, 26, 33, 35, 37, 38, 43, 44, 46, 47 and 49-67 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 19 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-846)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 51-67 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. In regards to claim 51, Applicant recites, "a plurality of magnetic sensors positioned a distance from a location half way between an upper and lower surface of said ring-like magnet to a location half way between an upper and lower surface of one of said magnetic sensors is within 0 and 0.75 mm in vertical direction to said plane". However, the claim language is not clear. Examiner is going to assume for purposes of examination that Applicant intended the claim to read "wherein each of a plurality of magnetic sensors are positioned such that a distance from an intersection of a half way between an upper and lower surface of said ring-like magnet and a half-way point of said magnetic sensor is within a range from 0 to .75 mm in a vertical direction to said plane."

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 19, 23, 25-26 and 49/19, 49/23, 49/25, 49/26, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maattaet et. al (US 6,762,748) hereinafter, Maattaet, in view of Laube et al (5,506,558) hereinafter, Laube

7. In regards to claim 19, Maattaet discloses the limitations of a ring-like magnet that is movably supported in a plane, and is magnetized; and

a plurality of magnetic sensors (fig. 3a (323, 322, 320, 321)) for detecting magnetic flux density produced by said ring-like magnet in a direction parallel to said plane are placed outside said ring-like magnet (fig. 3a and 3b),

wherein said magnetic sensors are disposed symmetrically from each other to said ring-like magnet (fig. 3a (323, 322, 320, 321) symmetric about the ring),

said magnetic sensors are positioned to detect variations in the magnetic flux density in the direction parallel to said plane(fig. 3a and 3b), the variations being caused

by movement of said ring-like magnet in a direction parallel to said plane (fig. 3a and 3b (col. 5-6, lines 65-15)).

Maattaet differs from the claimed invention in that Maattaet does not disclose said ring-like magnet comprises inner and outer ring sections of north and south magnetization along a radius of said ring-like magnet.

However, Laube teaches a system and method for a ring-like magnet comprises inner and outer ring sections of north and south magnetization along a radius of said ring-like magnet (fig. 8 col. 8, lines 40-67 of Laube).

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify Maattaet to include the use of ring-like magnet comprises inner and outer ring sections of north and south magnetization as taught by Laube in order to provide a more substantial magnetic field as stated in (col. 2, lines 38-60 of Laube).

8. In regards to claim 23, Maattaet as modified by Laube teaches wherein said magnetic sensors are magnetic sensors utilizing Hall effect, and the output signals are proportional to the magnetic flux density (col. 5, lines 40-67 Maattaet).

9. In regards to claim 25, Maattaet and Laube teaches further comprising an origin returning means for returning said ring-like magnet to the origin using magnetic force generated by said ring-like magnet (col. 9, lines 7-22 Maattaet).

10. In regards to claim 26 Maattaet as modified by Laube teaches wherein said magnetic sensors (fig. 3a and 3b (320) Maattaet) are disposed and faced to one of the outer ring sections of said ring-like magnet (fig. 8 col. 8, lines 40-67 of Laube).

11. In regards to claim 49/19, 49/23, 49/25, 49/26, see the rejection of claim 19. Also, with respect to the preamble claiming an electronic device incorporating the pointing device as claimed in any one of the above (see col. 9, lines 1-5 Maattaet wherein the pointing device can be incorporated into a keyboard).

12. In regards to claim 50, Maattaet and Laube teaches wherein said ring-type magnet is magnetized at M sets of north-south poles, where $M = K \times I$, K equals the number of magnetic sensors, and I is an integer equal to or greater than one (fig. 5b 520 and corresponding arrows it is magnetized at said points and then some. Maattaet).

13. Claims 21, 24, 33, 34, 37, 38, 43-44, 46-47 and 49/24, 49/33, 49/34, 49/37, 49/38, 49/43, 49/46 and 49/47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maattaet and Laube, in view of Arita et. al (US 5,504,502) hereinafter, Arita.

14. In regards to claim 21, Maattaet and Laube disclose a printed circuit board (fig. 4a (416) Maattaet) and said ring-like magnet is movably supported in parallel to said

printed circuit board (fig. 3a and 3b Maattaet) and said magnetic sensors are placed on said printed circuit board (fig. 3a and 3b Maattaet) and fig. 4a (416) Maattaet).

Maattaet and Laube differ from the claimed invention in that Maattaet and Laube do not disclose a printed circuit board on which a resin layer with elastic deformation is provided, wherein said ring-like magnet is fixed to said resin layer, ,

However, Arita teaches a system and method for a printed circuit board on which a resin layer with elastic deformation is provided, wherein said ring-like magnet is fixed to said resin layer, (fig. 1 (14) col. 4, lines 47-60 of Arita).

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify Maattaet and Laube to include the use of a printed circuit board on which a resin layer with elastic deformation is provided, wherein said ring-like magnet is fixed to said resin layer as taught by Arita in order to give a better feeling, or more human feeling as stated in (col. 4, lines 50-60 of Arita).

15. In regards to claim 24, Maattaet and Laube fail to expressly disclose wherein said magnetic sensors are magnetic sensors utilizing magneto-resistive effect.

However, Arita teaches wherein said magnetic sensors are magnetic sensors utilizing magneto-resistive effect (col. 8, lines 40-50 magnetic reluctance element).

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify Maattaet and Laube to include the use of wherein said magnetic sensors are magnetic sensors utilizing magneto-resistive effect as taught by Arita in

order to accurately detect the motion direction and distance as stated in (col. 2, lines 30-66 of Arita).

16. In regards to claim 33, Maattaet and Laube as modified by Arita teaches wherein said resin layer and said printed circuit board have their opposing faces not bonded to each other (fig. 9a (18) col. 7, lines 36-38 Arita).

17. In regards to claim 34 Maattaet and Laube as modified by Arita teaches wherein said resin layer is an elastic sheet (fig. 1 (11) col. 4, lines 51-53 Arita).

18. In regards to claim 37, Maattaet and Laube as modified by Arita teaches further comprising a switch on the resin layer side of said printed circuit board and at about the center of said ring-like magnet (fig. 19 (15) col. 8, lines 38-43 Arita).

19. In regards to claim 38, Maattaet and Laube as modified by Arita teaches comprising a projection (fig. 4a 402 projects from 420 Maattaet) for depressing said switch at a portion facing said switch on said resin layer (col. 4, lines 47-60 of Arita).

20. In regards to claim 43, Maattaet and Laube as modified by Arita teaches wherein said magnetic sensors utilizing the Hall effect are disposed (col. 5, lines 40-55 Maattaet) on the resin layer side (col. 4, lines 47-60 of Arita) of said printed circuit board to detect

the magnetic flux density in a direction parallel to the surface of said printed circuit board (fig. 29, (14-1, 14-2) and fig. 10 (17) of Arita) .

21. In regards to claim 44, Maattaet and Laube as modified by Arita teaches wherein said magnetic sensors utilizing the Hall effect are magnetic sensors with a single output terminal (col. 5, lines 53-65 Maattaet).

22. In regards to claim 46, Maattaet and Laube as modified by Arita teaches wherein said magnetic sensors utilizing the magneto-resistive effect are semiconductor magneto-resistive elements (col. 8, lines 40-50 magnetic reluctance element) which are disposed on the resin layer (col. 4, lines 50-60 Arita) side of said printed circuit board to detect the magnetic flux density in a direction parallel to the surface of said printed circuit board (fig. 29, (14-1, 14-2) and fig. 10 (17) Arita) .

23. In regards to claim 47, Maattaet and Laube as modified by Arita teaches wherein said magnetic sensors utilizing the magneto-resistive effect (col. 8, lines 40-50 magnetic reluctance element Arita) are four semiconductor magneto-resistive elements disposed symmetrically on X and Y axes (fig. 3a and 3b (323,322,320 and 321) Maattaet), which are two axes on a two dimensional plane of an orthogonal system (fig. 3a and 3b (323,322,320 and 321) Maattaet), wherein two magnetic sensors on the X axis are electrically connected at a first connection point; and two magnetic sensors on the Y axis are electrically connected at a second connection point, and wherein said

pointing device detects variations in ambient magnetic flux density caused by movement of said ring-like magnet (col. 6, lines 1-37 Maattaet) using electric signals at the first and second connection points (fig. 8a and fig. 8b col. 5, lines 40-50 Arita).

24. In regards to claims 49/24, 49/33, 49/34, 49/37, 49/38, 49/43, 49/46 and 49/47 see the rejection of claim 24. Also, with respect to the preamble claiming an electronic device incorporating the pointing device as claimed in any one of the above (see col. 9, lines 1-5 Maattaet wherein the pointing device can be incorporated into a keyboard).

25. Claims 35 and 49/35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maattaet, Laube and Arita, in view of Matsuda et. al (US 5,541,370) hereinafter, Matsuda.

26. In regards to claim 35, Maattaet, Laube and Arita differs from the claimed invention in that Maattaet, Laube and Arita does not disclose wherein said resin layer is a silicone resin.

However, Matsuda teaches a system and method for wherein said resin layer is a silicone resin. (col. 12, lines 10-17 of Matsuda).

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify Maattaet, Laube and Arita to include the use of silicone resin as

taught by Matsuda, since silicone resin is a durable widely used and easily obtained resin.

27. In regards to claim 49/35 see the rejection of claim 35. Also, with respect to the preamble claiming an electronic device incorporating the pointing device as claimed in any one of the above (see col. 9, lines 1-5 Maattaet wherein the pointing device can be incorporated into a keyboard).

28. Claims 51-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maattaet, in view of Hedayat et. al (US 5,831,554) hereinafter, Hedayat.

29. In regards to claims 51, 64, 65, 66, and 67, Maattaet discloses the limitations of a pointing device comprising:

a ring-like magnet that is movably supported in a plane (fig. 3a (300)), and is internally and externally magnetized ((fig. 5a circles showing flux) along said ring in said plane (fig. 3a and 3b); and

wherein said magnetic sensors are positioned to detect variations in the magnetic flux density in the direction parallel to said plane, the variations being caused by movement of said ring-like magnet (col. 5-6, lines 40-15).

Maattaet differs from the claimed invention in that Maattaet does not disclose wherein each of a plurality of magnetic sensors are positioned such that a distance from an intersection of a half way between an upper and lower surface of said ring-like magnet and a half-way point of said magnetic sensor is within a range from 0 to .75 mm in a vertical direction to said plane.

However, Hedayat teaches a system and method for a "plurality of slots formed in them to provide clearance for the sensor to reach inside the hollow ball and maintain a close and fixed proximity to the magnet" (col. 2, lines 33-67). Examiner notes the distance from a magnet and a sensor within 0 would be considered close.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify Maattaet to include the use of wherein each of a plurality of magnetic sensors are positioned such that a distance from an intersection of a half way between an upper and lower surface of said ring-like magnet and a half-way point of said magnetic sensor is within a range from 0 to .75 mm in a vertical direction to said plane as taught by Hedayat in order to maintain a close and fixed proximity as stated in (col. 2, lines 33-67) and since magnetic flux is more easily detected the closer a sensor is to the magnet.

30. Claims 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maattaet and Hedayat in view of Arita et. al (US 5,504,502) hereinafter, Arita.

31. In regards to claim 52, Maattaet and Hedayat fail to expressly disclose wherein said magnetic sensors are magnetic sensors utilizing magneto-resistive effect.

However, Arita teaches wherein said magnetic sensors are magnetic sensors utilizing magneto-resistive effect (col. 8, lines 40-50 magnetic reluctance element).

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify Maattaet and Hedayat to include the use of wherein said magnetic sensors are magnetic sensors utilizing magneto-resistive effect as taught by Arita in order to accurately detect the motion direction and distance as stated in (col. 2, lines 30-66 of Arita).

32. In regards to claim 53, Maattaet and Hedayat as modified by Arita teaches wherein said magnetic sensors utilizing the magneto-resistive effect (col. 8, lines 40-50 magnetic reluctance element Arita) are four semiconductor magneto-resistive elements disposed symmetrically on X and Y axes (fig. 3a and 3b (323,322,320 and 321) Maattaet), which are two axes on a two dimensional plane of an orthogonal system (fig. 3a and 3b (323,322,320 and 321) Maattaet), wherein two magnetic sensors on the X axis are electrically connected at a first connection point; and two magnetic sensors on the Y axis are electrically connected at a second connection point, and wherein said pointing device detects variations in ambient magnetic flux density caused by movement of said ring-like magnet (col. 6, lines 1-37 Maattaet) using electric signals at the first and second connection points (fig. 8a and fig. 8b col. 5, lines 40-50 Arita and col. 5, lines 40-67 Maattaet).

33. In regards to claim 54, Maattaet and Hedayat fail to disclose wherein said ring-like magnet is internally and externally unipolarly magnetized.

However, Arita discloses wherein said ring-like magnet is internally and externally unipolarly magnetized (see fig. 9a col. 6, lines 5-20).

Therefore, viewing the references as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to be motivated to incorporate the internally and externally unipolarly magnetized magnets of Arita into the input device of Maattaet, for the benefit of low power consumption and simple construction (Col. 6, lines 22-25 Arita)

34. In regards to claim 55, Maattaet and Hedayat as modified by Arita teaches wherein said ring-like magnet is internally and externally magnetized in a multipolar manner in the direction of its circumference, and said magnetic sensors are faced to a magnetic pole of said ring-like magnet magnetized in a multipolar manner (fig. 3b and lines extending out Maattaet).

35. In regards to claim 56, Maattaet and Hedayat as modified by Arita teaches wherein said magnetic sensors are disposed symmetrically on X and Y axes, which are two axes on a two dimensional plane of an orthogonal system, and said ring-like magnet is placed near said magnetic sensors (fig. 3b and lines extending out Maattaet).

36. In regards to claim 57, Maattaet and Hedayat as modified by Arita teaches wherein said magnetic sensors are magnetic sensors utilizing Hall effect, and the output signals are proportional to the magnetic flux density (col. 5, lines 40-67 Maattaet).

37. In regards to claim 58, Maattaet and Hedayat as modified by Arita teaches wherein said magnetic sensors utilizing the Hall effect are magnetic sensors with a single output terminal (col. 5, lines 53-65 Maattaet).

38. In regards to claim 59, Maattaet and Hedayat as modified by Arita further teaches comprising an origin returning means for returning said ring-like magnet to the origin using magnetic force generated by said ring-like magnet (col. 9, lines 7-22 Maattaet).

39. In regards to claim 60, Maattaet and Hedayat discloses the limitations of a printed circuit board (fig. 4a (416) Maattaet), a switch on a side of said printed circuit board and at about the center of said ring-like magnet, and a projection for depressing said switch at a portion facing said switch (fig. 3a and 3b and col. 5, lines 40-67 Maattaet).

Maattaet and Hedayat differ from the claimed invention in that Maattaet and Hedayat do not disclose a resin layer

However, Arita teaches a system and method for using resin (fig. 19 (15) col. 7, lines 36-38 Arita)

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify Maattaet and Hedayat to include the use resin to provide a printed circuit board on which a resin layer with elastic deformation is provided, a switch on the resin layer side of said printed circuit board and at about the center of said ring-like magnet, and a projection for depressing said switch at a portion facing said switch on said resin layer as taught by Arita in order to give a better feeling, or more human feeling as stated in (col. 4, lines 50-60 of Arita).

40. In regards to claim 61, Maattaet and Hedayat as modified by Arita wherein said resin layer and said printed circuit board have their opposing faces not bonded to each other (fig. 19 (15) col. 7, lines 36-38 Arita).

41. In regards to claim 63, Maattaet and Hedayat as modified by Arita teaches wherein said resin layer is an elastic sheet (fig. 1 (11), col., 4 lines 51-53 Arita).

42. Claim 63 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maattaet and Hedayat and Arita in view of Matsuda et. al (US 5,541,370) hereinafter, Matsuda.

43. In regards to claim 63, Maattaet, Hedayat and Arita differs from the claimed invention in that Maattaet, Hedayat and Arita does not disclose wherein said resin layer is a silicone resin.

However, Matsuda teaches a system and method for wherein said resin layer is a silicone resin. (col. 12, lines 10-17 of Matsuda).

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify Maattaet, Hedayat and Arita to include the use of silicone resin as taught by Matsuda, since silicone resin is a durable widely used and easily obtained resin.

Response to Arguments

44. Applicant's arguments with respect to claims 19,21, 23-26, 33-35, 37-38, 43-44, 46-47, and 49-67 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

45. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GRANT D. SITTA whose telephone number is (571)270-1542. The examiner can normally be reached on M-F 9-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on 571-272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sumati Lefkowitz/
Supervisory Patent Examiner, Art Unit 2629

/Grant D Sitta/
Examiner, Art Unit 2629
January 8, 2008